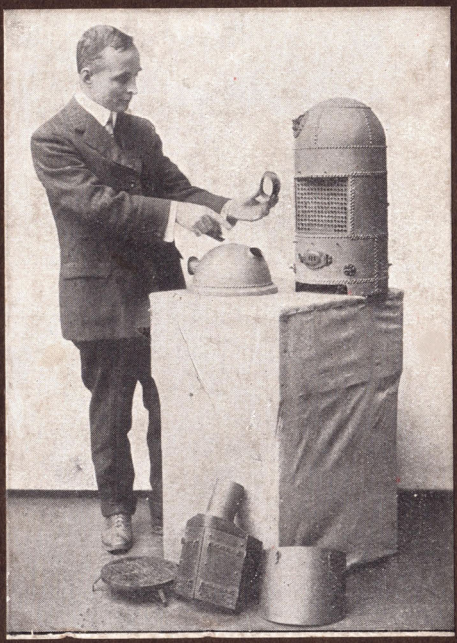
THE
COCHRAN BOILER.



AN ILLUSTRATED INTERVIEW.

COCHRAN & CO., ANNAN, LIMITED,
ANNAN, SCOTLAND.

ROBERT DINWIDDIE, DUMFRIES.

AN

ILLUSTRATED INTERVIEW

SHOWING

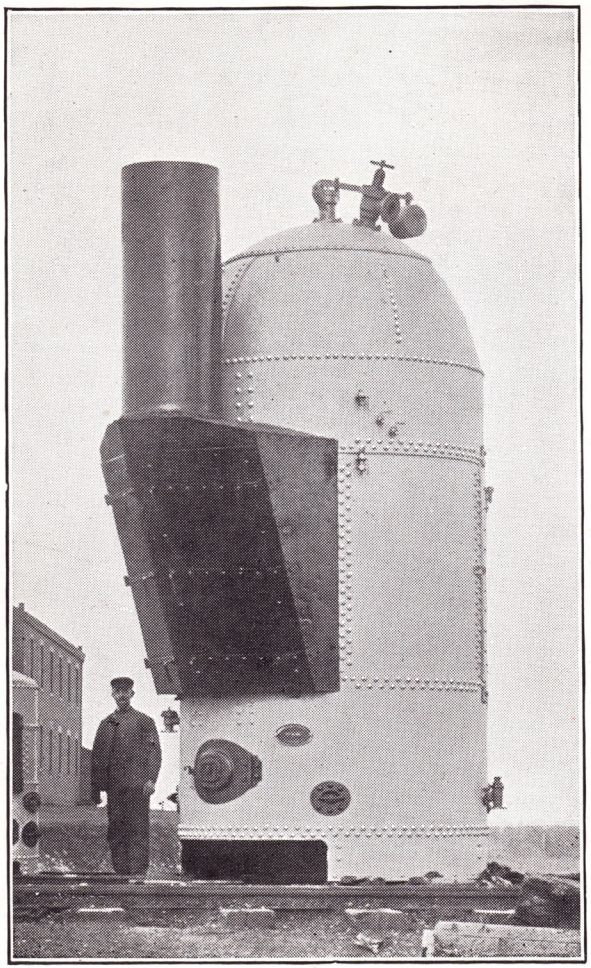
THE SPECIAL FEATURES AND ADVANTAGES

OF THE

COCHRAN PATENT VERTICAL MULTITUBULAR BOILER.

COCHRAN & CO., ANNAN, LIMITED,

ANNAN, SCOTLAND.



FROM A PHOTOGRAPH OF A STANDARD COCHRAN BOILER, 7 FT. 6 IN. DIA. AND 16 FT. 3 IN. HIGH, WITH 730 SQ. FT. HEATING SURFACE.

AN ILLUSTRATED INTERVIEW.

INTRODUCTION.

THE following pages are an attempt to show, by means of a Model, the unique advantages of the COCHRAN BOILER.

THE COCHRAN BOILER is recognised on every hand as a reliable and powerful steam generator. Improvements have been continually introduced, and this little Model has been constructed to show the up-to-date design in our Standard Boiler.

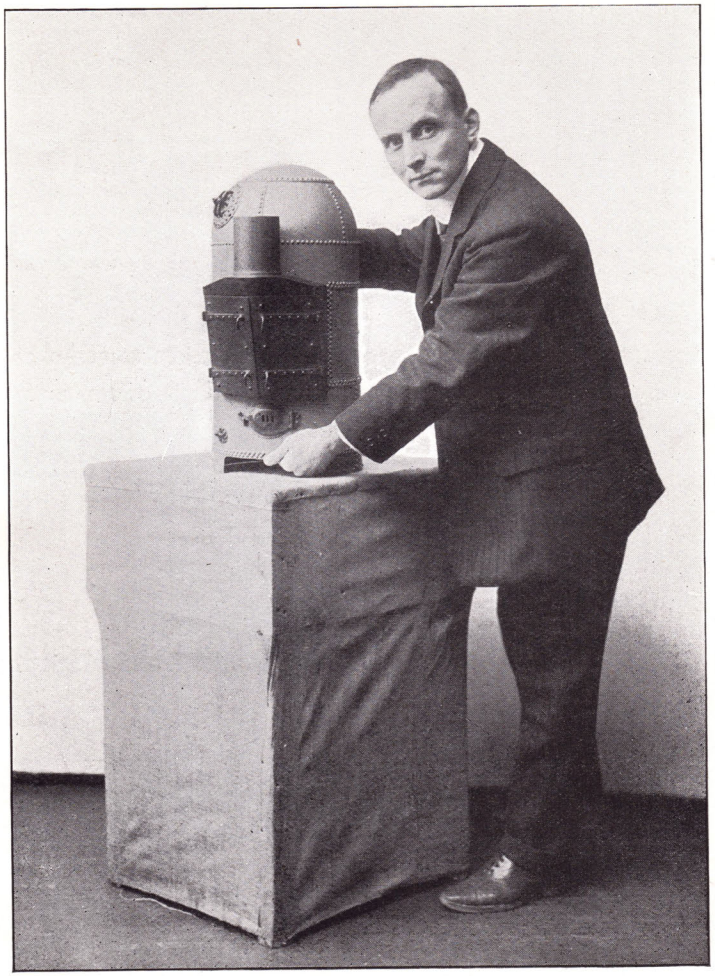
No. 1.

Here is a Model of a Cochran Boiler, an exact facsimile of our standard type ; 7 feet diameter by 15 feet high, 600 sq. feet heating surface.

The Cochran Boiler is a Vertical Boiler with horizontal flue tubes. It requires no brickwork setting—only a hard flat surface to stand upon.

THIS MEANS—

Minimum Cost for Erection and Setting to Work.



No. 1.

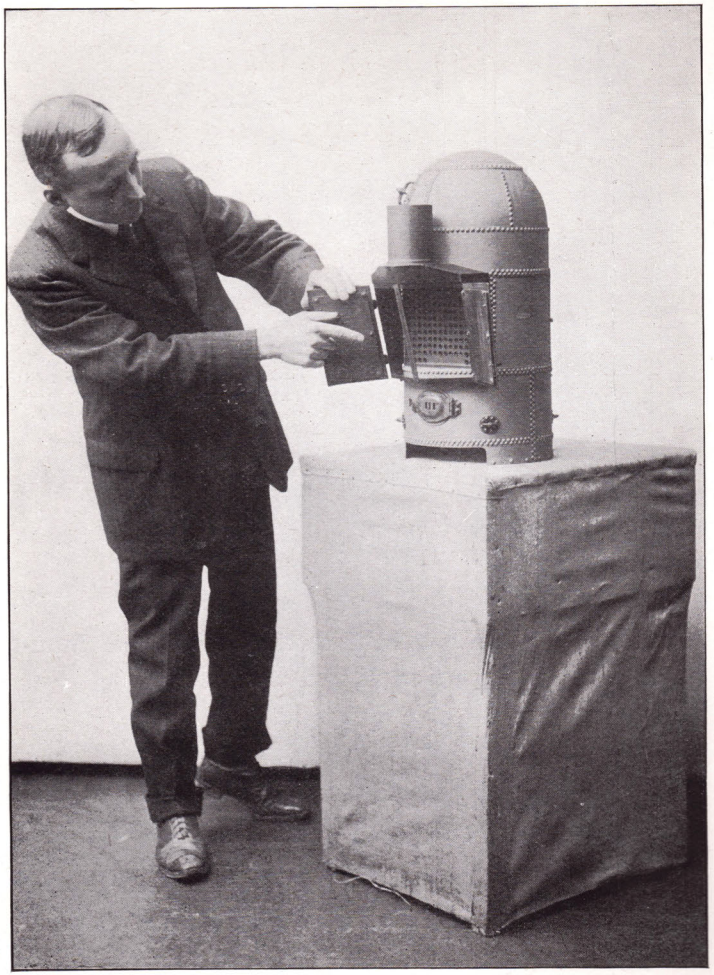
No. 2.

The horizontal flue tubes can be seen when the smoke-box doors are opened. It is an easy matter to sweep them should they become dirty with soot.

The tubes absorb all the heat of the flames after they leave the combustion chamber and furnace.

THIS MEANS—

The Boiler is a powerful and efficient Steam Generator.



No. 2.

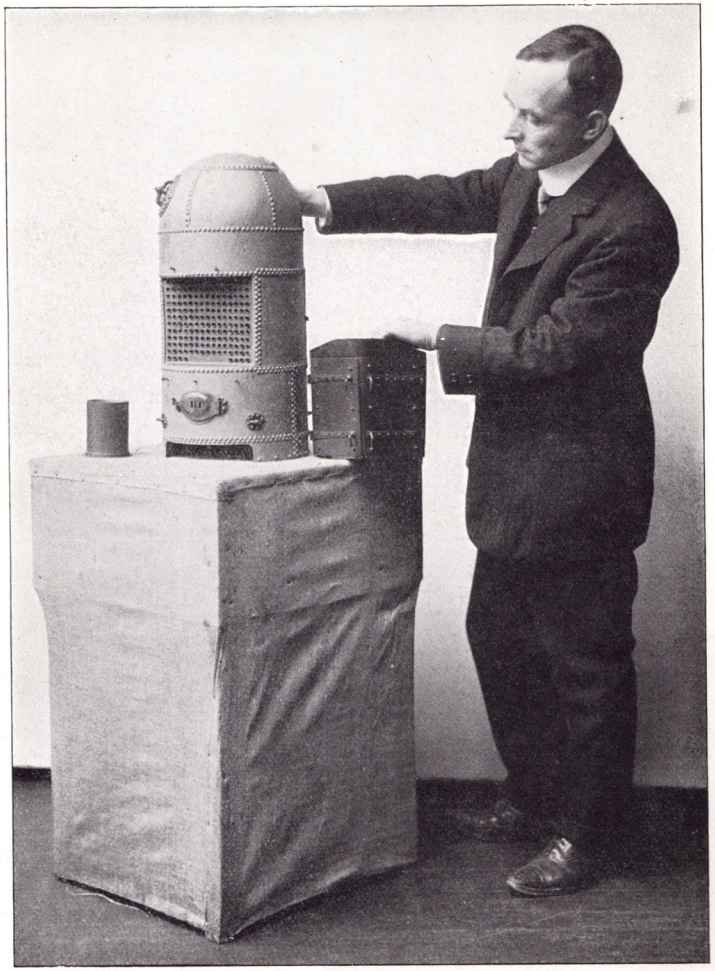
No. 3.

The smokebox is detachable from the Boiler, and when removed the whole of the front tube plate can be seen.

The smokebox is usually removed from the Boiler for transit.

THIS MEANS—

The Boiler is specially suitable for Transport or Shipment.



No. 3.

No. 4.

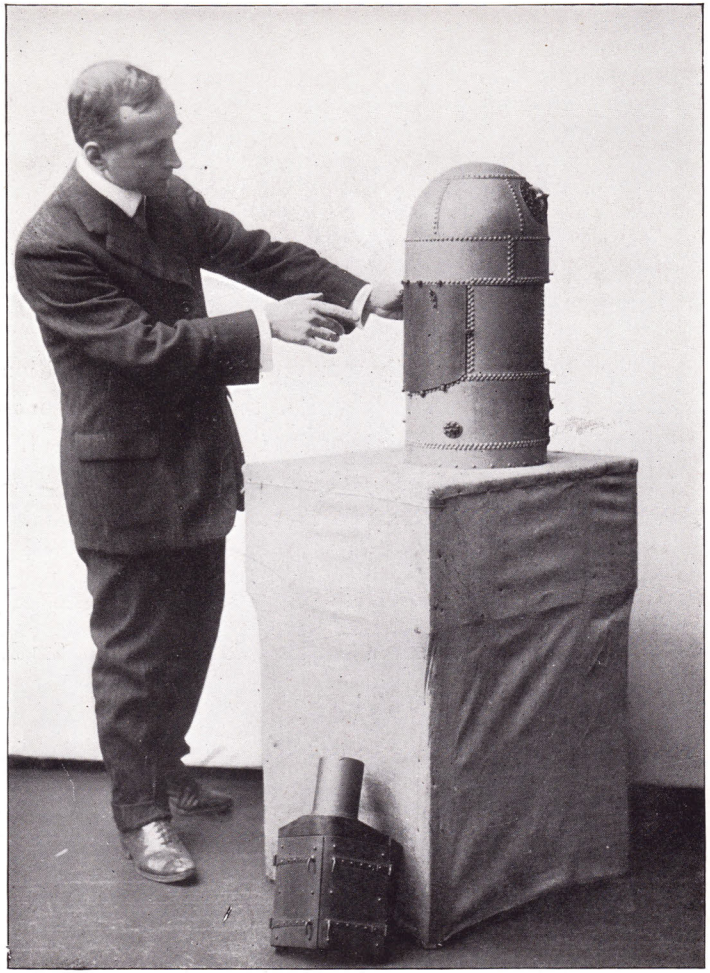
Turning the Boiler round we see the "Back Plate," which forms the back of the "Combustion Chamber" of the Boiler.

The flames and gases, after leaving the furnace, pass into this chamber, where combustion is completed, and then enter the small tubes at a high temperature. During their passage through the tubes all the heat is extracted from them.

To ensure successful working of the multitubular system it is essential that thorough combustion take place before flames reach the tubes. The Cochran design of combustion chamber fully provides for this.

THIS MEANS—

Accessibility combined with Efficiency.



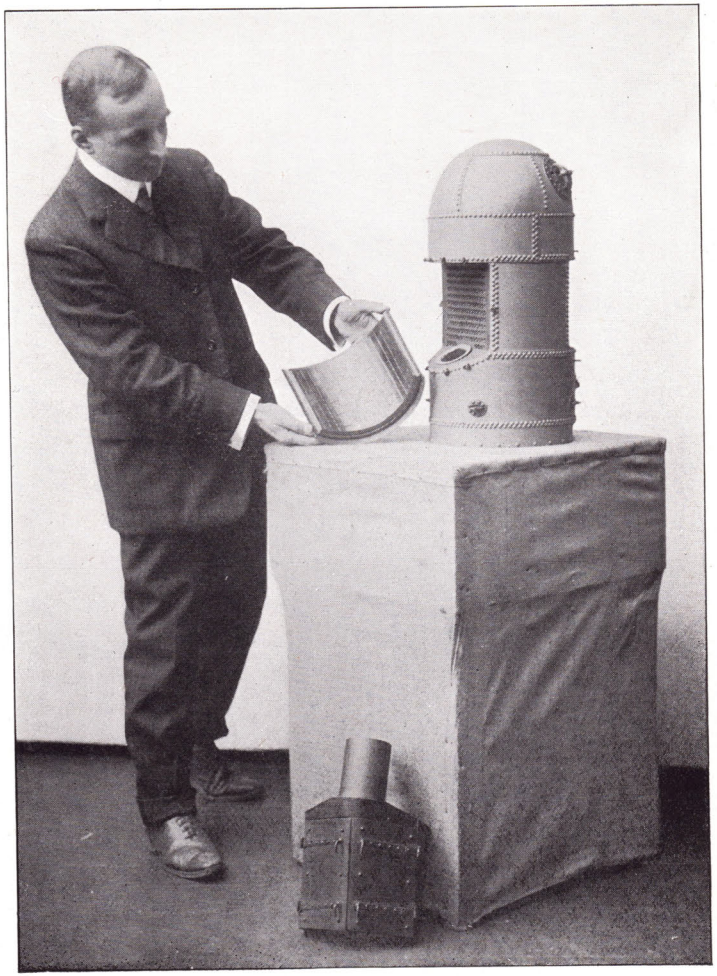
No. 4.

No. 5.

The back plate is easily removed, being held in position with a few clamps only. Here it is removed. Notice it is lined with fire-brick. This is a most important feature—the gases, striking the hot brickwork as they come from the furnace, are re-ignited, and smoke is reduced to a minimum.

THIS MEANS—

Freedom from Smoke, and Small Coal Bill.



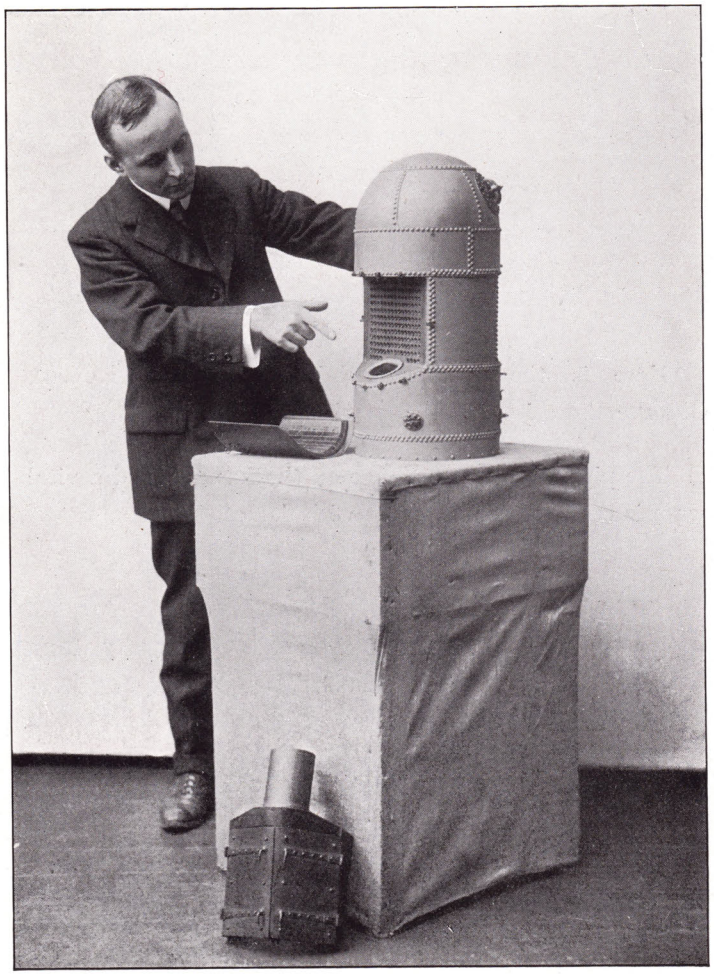
No. 5.

No. 6.

Now look at the "uptake pipe," through which the gases pass from the furnace. It is put in from the combustion chamber side, and its flange is riveted to the tube plate. Should anything go wrong with this pipe it is readily removable.

THIS MEANS—

Low Cost for Repairs should they be necessary.



No. 6.

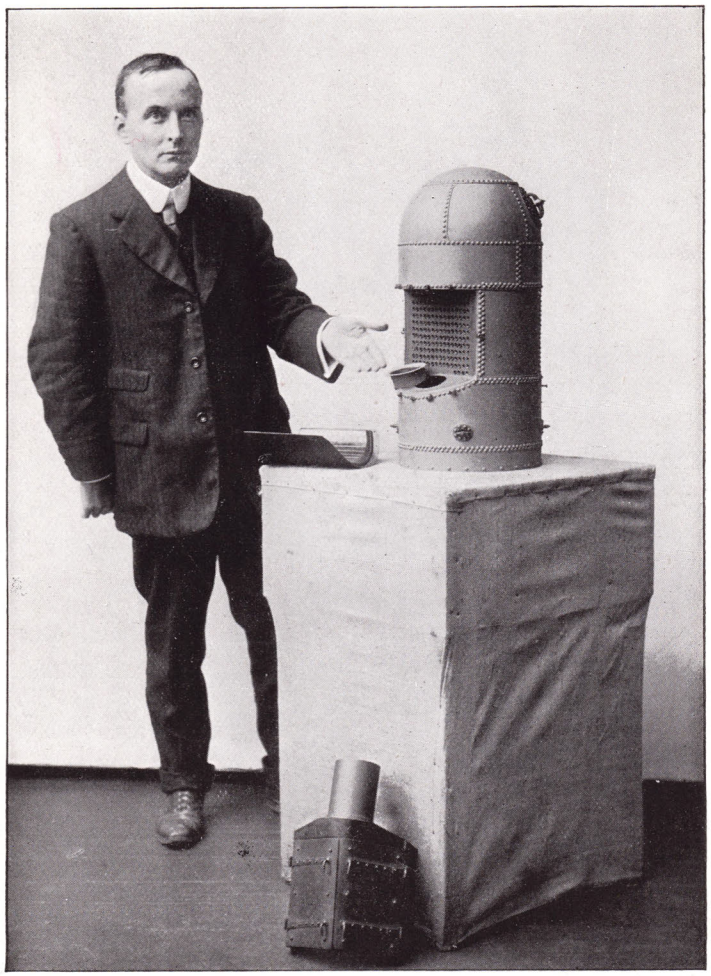
No. 7.

Here is the uptake withdrawn (rivets removed). Observe there is no flange at the other end.

The pipe slips over a flange on the furnace, and a vital seam is removed from impact with flames.

THIS MEANS—

Length of Life and Immunity from Uptake Troubles.



No. 7.

No. 8.

Now let us see the inside of the Boiler. The model is arranged to take to pieces. First we will take the top off. Note the absence of stays and simplicity of construction. The spherical top of the Boiler makes stay bars or gussets quite unnecessary.

THIS MEANS—

Freedom from Leaky Stay Bars, and ample space inside for examination and cleaning.

No. 8.

No. 9.

Having removed the top we see the tubes. Observe how numerous they are. It is these tubes that make the Boiler the wonderful steam generator it is, by absorbing all the heat generated in the furnace and combustion chamber.

Notice the space between the nest of tubes and the shell of the Boiler. In all sizes but the very smallest a full-sized man can easily get down this space, and then all round the furnace to clean it.

These spaces on each side of the Boiler act as down-takes for the cool water when steam is rising from the furnace and tubes, and ensure a perfect circulation in the Boiler.

THIS MEANS—

Real Economy of Fuel, as expressed by a Reduced Coal Bill.

No. 9.

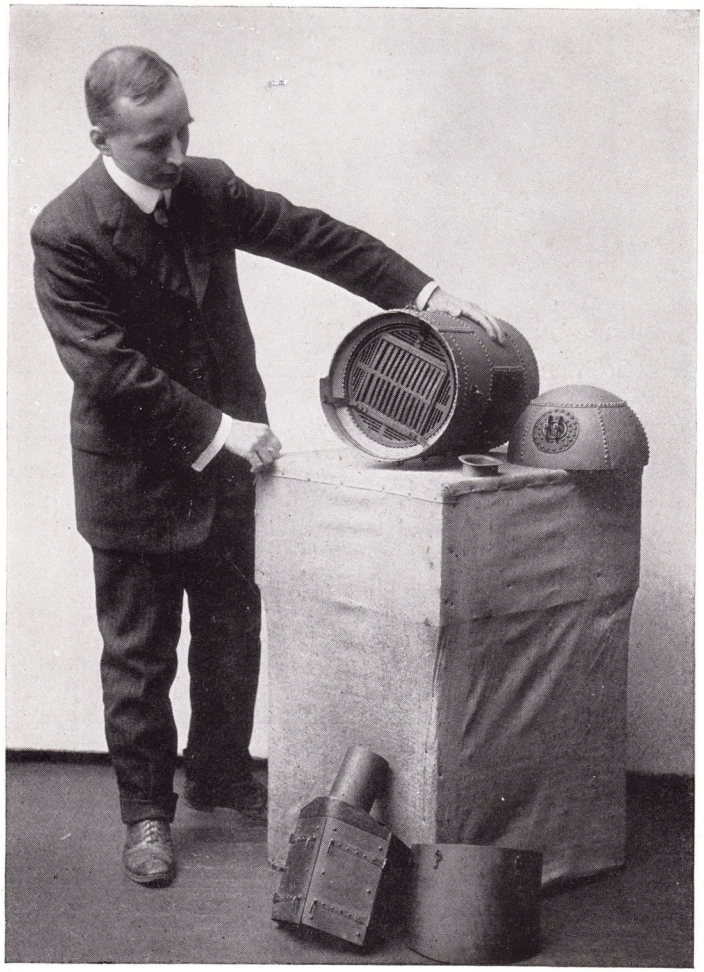
No. 10.

Turning the Boiler over we see the "fire-bars." These are supported on an angle-iron ring held in position by lugs.

The space under the fire-bars constitutes the ashpit, which is formed by the extension of the boiler shell.

THIS MEANS—

The Boiler is Self-contained, and there is No External Fire Grate to Build.



No. 10.

No. 11.

The fire-bars can easily be taken out, and then we see the "Cochran Patent Seamless Furnace."

Observe there are no rivets in the furnace exposed to flame. The furnace itself is flanged from one plate and there are no welds. An ogee ring is riveted to the bottom of the furnace connecting it with the boiler shell, but these rivets are below the fire.

THIS MEANS—

A Furnace that Cannot Leak.

No. 11.

No. 12.

Notice the firing hole at the top and the uptake pipe below. Notice also that the furnace plate is in both cases flanged outward to take the fire-hole and uptake pipes.

In this way rivets have no flames impinging on them, and leaky rivets and seams are quite unknown.

THIS MEANS—

Freedom from Corrosion caused by Leaky Rivets.

No. 12.

No. 13.

The furnace next comes out. Observe the "back tube plate," with the hole cut out for uptake pipe. Also observe the nest of tubes, with space between them and the boiler shell for giving access from top of Boiler to furnace for cleaning purposes.

THIS MEANS—

Perfection in Boiler Design and Workmanship.

No. 13.

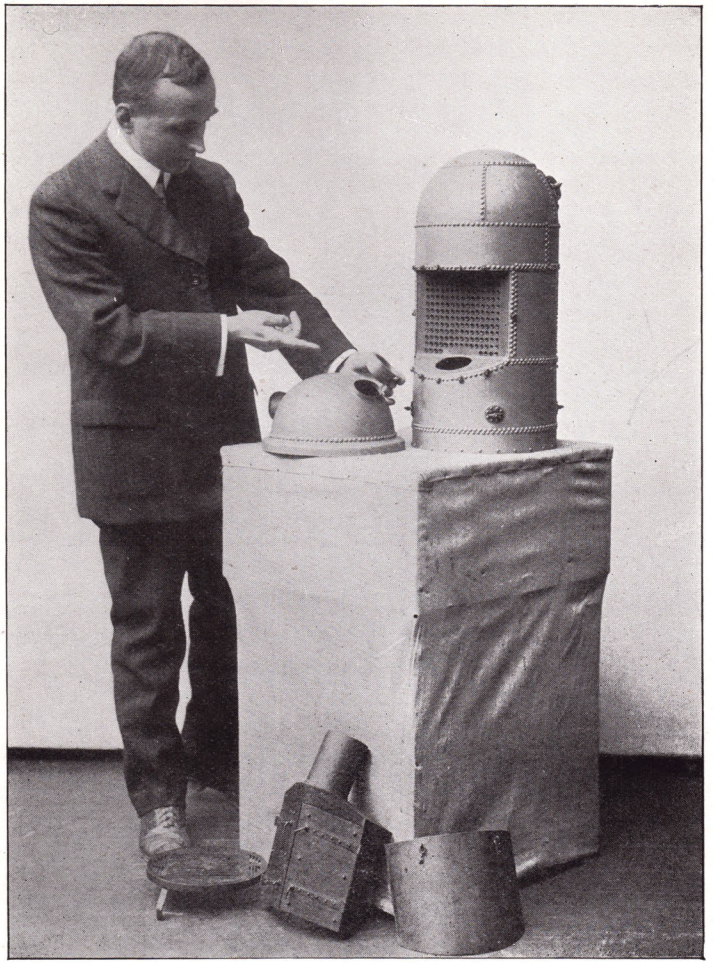
No. 14.

Here is the Cochran Seamless Furnace. Observe the total absence of rivets above the fire. Also notice how the uptake pipe fits on the flange on furnace through hole in back tube plate.

A Cochran Boiler with seamless furnace does away with all the furnace troubles of the past.

THIS MEANS—

You should insist on having a Cochran Boiler with Seamless Furnace.



No. 14.

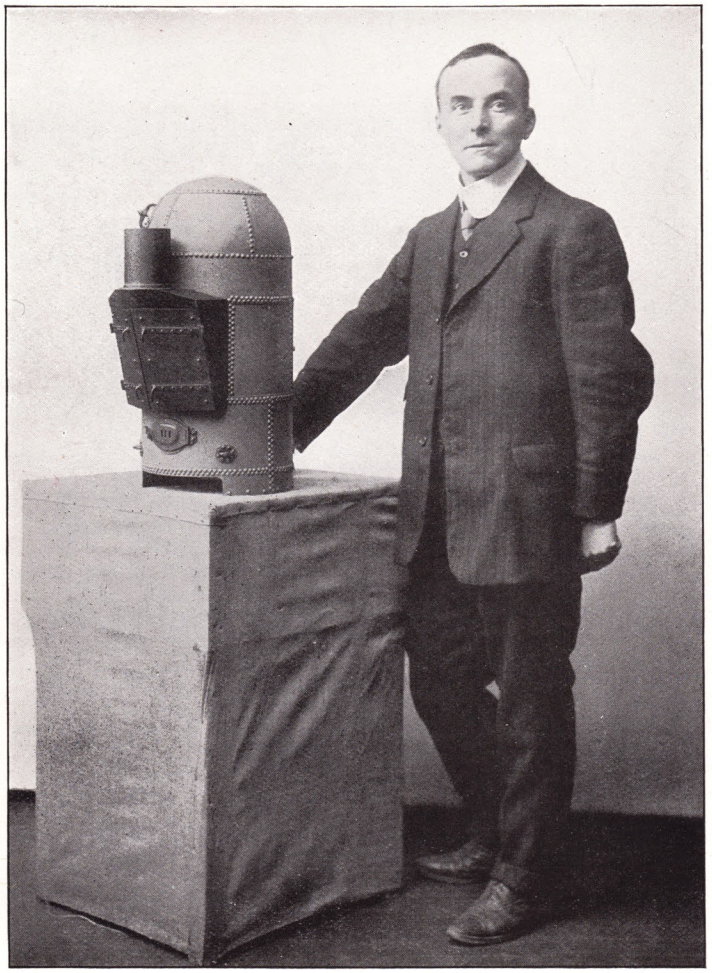
No. 15.

Once again the Model is put together. The Cochran Boiler is the best there is.

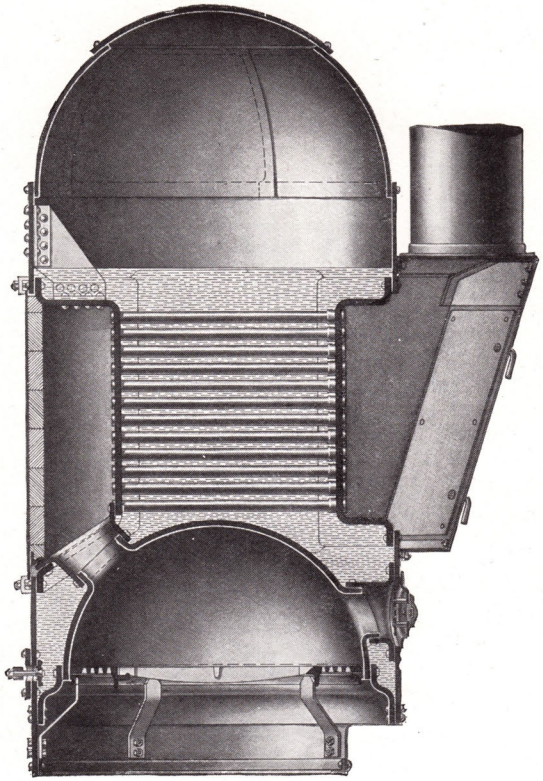
THIS MEANS—

You should have a Cochran Boiler.

It will save you Coal, supply any amount of Steam, and cost you practically nothing for Upkeep.



No. 15.



SECTION OF STANDARD COCHRAN BOILER.

REMEMBER!

Anyone can design a Boiler with a large heating surface, **but** it usually cannot be cleaned or examined inside, and consequently the advantage of the large heating surface is lost in use.

Anyone can design a Boiler that can be cleaned inside, but it will probably have little effective heating surface.

Anyone can design a Boiler which shall have some merit or another, but this merit is usually counterbalanced by serious defects.

The COCHRAN BOILER has a large heating surface, and it **can easily be cleaned inside.**

The COCHRAN BOILER has all the good points a **perfect steam generator** should possess.

30 years' experience has proved it.

COCHRAN BOILERS are made in all sizes from 60 to 1000 sq. feet of heating surface.

Delivery in all Sizes from Stock.

Write at once for Priced Catalogues :—

Class A ..... For Land Use.

Class B ..... For Marine Use (Donkey Boilers).

Class C ..... For Steam Launches.

Class M.I.P. For Specially Confined Spaces ("No Smokebox" Type).

COCHRAN BOILERS.